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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,221	03/18/2004	Shigenori Ito	811_045	5630
25191	7590	08/03/2005	EXAMINER	
BURR & BROWN PO BOX 7068 SYRACUSE, NY 13261-7068			CREPEAU, JONATHAN	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 08/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/803,221	ITO ET AL.	
	Examiner	Art Unit	
	Jonathan S. Crepeau	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 9-15 and 19-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 16-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/10/05, 3/18/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-8 and 16-18 in the reply filed on June 24, 2005 is acknowledged. The traversal is on the ground(s) that a thorough and complete search for the subject matter of the elected claims would necessarily encompass a through and complete search for the subject matter of the nonelected claims. This is not found persuasive because each invention recites distinct features which cause the inventions to be searched and classified in separate areas.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 4, 5, 7, 8, and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2000-062077. The reference is directed to a laminated body comprising a porous sintered SiN layer (2) and a dense yttria-stabilized zirconia (YSZ) layer (1) (see abstract, Fig. 1). The thickness of the porous layer is 0.1-10 mm (100-10,000 microns), thereby anticipating the range

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of claim 1 (see paragraph 0018). Further, the thickness of the dense layer is 10-200 times the average pore size of the porous layer (see par. 0022), which is 0.1-50 micron (par. 0018). Using the lower value of 10, the thickness of the dense layer may be 1-500 microns, thereby anticipating the range of claim 1. In paragraphs 0025 and 0041, the reference teaches that the dense layer has a helium leakage rate of 5×10^{-9} atm cc/s (5×10^{-10} Pa m³/s). Thus, the entire laminated body would have such a helium leakage rate, thereby anticipating the range of claim 1. Regarding claim 5, the YSZ film functions as an electrolyte film. Regarding claims 3 and 16-18, while the reference does not teach all of the claimed process limitations, claims 3 and 16-18 are product-by-process claims. If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP §2113. Accordingly, the instant claims are not considered to be distinguished over JP '077.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 6, 7, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi et al (U.S. Pre-Grant Publication No. 2001/0038936).

As shown in Figure 44(a), the reference is directed to layered solid oxide fuel cells comprising an air electrode (15) interconnector (14), fuel electrode (12) and substrate (11). The interconnector layer is dense, having a relative density of at least 94% (see paragraph 0084). As such, the interconnector, and thus the laminate comprising the interconnector, would inherently have a helium leakage rate falling within the claimed range (see also paragraph 0063 of the instant specification, paragraph 0169 of Nishi et al.). Regarding claims 3, 16, and 17, the laminates of the reference can be made by a printing or coating step, a cold pressing step, and a co-sintering step (see pars. 0019, 0082 of the reference). As noted above, claims 3, 16, and 17 are considered to be product-by-process claims that do not produce a structure distinguishable from that of the reference.

Nishi et al. do not expressly teach that the porous air electrode has a thickness of at least 300 microns, or that the interconnector has a thickness of less than 25 microns, as recited in claim 1. The reference further does not teach that the laminated sintered bodies have an area of 60 square centimeters as recited in claim 2.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use a relatively thick substrate (or air electrode) and a relatively thin interconnector in the apparatus of Nishi. A thicker substrate would provide increased mechanical strength, while a thinner interconnector would provide decreased electric resistance. Further, in paragraph 0166, the

reference teaches that “by thinning the film, therefore, overvoltage due to the resistance of the interconnector 14 can be decreased.” As such, the claimed thicknesses are not considered to distinguish over the reference. Regarding claim 2, the recitation of an absolute size (surface area) of the sintered body is also not considered to distinguish over the reference. Generally, an artisan would be able to scale up or down the size of an apparatus depending on its intended use, among other factors. See MPEP 2144.04.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-062077.

The reference is applied for the reasons stated above. However, the reference does not teach that the laminated sintered bodies have an area of 60 square centimeters as recited in claim 2.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the recitation of an absolute size (surface area) of the sintered body is not considered to distinguish over the reference. Generally, an artisan would be able to scale up or down the size of an apparatus depending on its intended use, among other factors. See MPEP 2144.04.

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Conclusion

7. JP 8-319181, cited as an "X" document on the international search report, has been considered by has not been applied at this time because it is believed to be cumulative of the references applied above.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached at (571) 272-1414. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau
Primary Examiner
Art Unit 1746
August 2, 2005